

located appeared in danger of extirpation due to competing overgrowth.

S. purpurea

This species appeared to be the least common in the area described. All located populations were in disturbed areas such as roadside ditches or along dirt tracks through wet meadows. It was generally found growing alone in small populations, near but not mixed with S. alata or S. leucophylla. Surprisingly, it was not found with S. psittacina, although both showed a preference for the wettest habitats.

Hybrids

All five of the natural hybrids reported for the area were located. Where they occurred together S. alata and S. leucophylla invariably crossed so that S. alata x S. leucophylla was very easy to find. Complex back crosses were also evident, though less frequent. Perhaps the most striking single plant observed was a four foot high cross which is probably (S. alata x S. leucophylla) x S. leucophylla. It had the broadened tube of S. alata and a similar hood, but the coloration was S. leucophylla. Further, the hood was scalloped as is S. leucophylla. Hybrids of S. purpurea x S. alata and S. leucophylla were also fairly common, although most frequent in populations of the tubular parent. They were rarely found with S. purpurea. Indeed, both hybrids were usually found in amongst the tubular parent in localities where S. purpurea was considerably removed or not apparent. In at least two cases, an intense search for S. purpurea was made, to no avail.

Crosses of the tubular species with S. psittacina were least common of those observed, although S. psittacina could usually be found with either S. alata or S. leucophylla.

All of the S. psittacina x S. alata and S. psittacina x S. leucophylla were found in disturbed areas growing with S. psittacina. None were found with the tubular parent. S. psittacina hybrids are among the most unusual and beautiful of the genus.

Specimens of all plants mentioned were obtained and may be observed in the collections of J. A. Mazrimas as well as the author. All hybrid identifications are tentative and based on a best guess according to available parents. In the case of S. alata x S. purpurea and S. alata x S. psittacina, identification is probably absolute, as S. alata was the only tubular plant growing in the area or observed for many miles in any direction.

VISITING BOGS IN THE EAST AND WEST

by Richard Sivertsen

In the spring of 1970, I was stationed at Keesler AFB in Biloxi, Mississippi. I noticed that as I drove inland on Highway 90 and approached the woods and meadow country, I saw many plants with bright, tall yellow flowers everywhere, looking like giant dandelions. They practically lit up the entire way, from Ocean Springs to inland about twenty miles.

Later, I became acquainted with the base agronomist, Mr. Wilson, who

showed me a large meadow in the back of his home. This meadow had been dominated by tall pines but now most of them were burned down due to a bolt of lightning. Tall red flava-like pitcher plants now dominated the entire field of about four acres. As I looked through the towering three to four foot tall pitchers, I could see S. rubra, S. psittacina, Drosera rotundifolia, D. intermedia, D. filiformia var. tracyi and D. leucantha that grew in scrolls about three feet long and very bushy. Also there were numerous orchids with flowers ranging from blue-violet to yellow, red and pink. The natives here call these red-veined pitcher plants (S. alata) "butter-cups" because their flowers look just like a round cup overflowing with butter-like petals on five sides. The smaller pitcher plants, the parrot pitcher (S. psittacina) were sometimes called "blood-cups" because of the red petals. The D. filiformis var. tracyi sent up long flower stalks with about five to nine flowers on a four foot stem. The flowers were a dark violet purple.

At another time, I went to another burned field to look for other species of Sarracenia and came to a roadside dirt or mud bank about three to four feet tall. All over this bank grew tiny Drosera no larger than the size of a dime with tiny flower stalks. However, I didn't find any other species of Sarracenia other than the ones in Mr. Wilson's field. I was surprised to find a tall hybrid of S. alata and S. psittacina which had white spots on the top like S. psittacina but grew diagonally. It seemed that the hole where insects enter was very well hidden from view and I wondered if it was ever open to allow insects to be trapped.

I collected specimens for various botanical gardens. The root stocks and rhizomes of some of the tall S. alata plants took some long hours of work to dig up. One I remember was so long that with an original intention of not breaking the rhizome, I gave up and broke it at about fourteen inches in length. I still don't know how long the original rhizome might have been. The soil was clay mixed with very fine silica sand.

It was extremely difficult to distinguish the S. rubra species from the other tall, vertical pitchers. At first I thought both were the same species and size was the only difference. However, the flowers were different and the shape of the pitchers was slightly different. Evidently, I saw hybrids between the tall pitched plants and S. rubra. Some grew to about three feet while S. rubra grew only to about nine inches. No pitcher plants grew in any "perpetual puddles" in this meadow (as the D. rotundifolia and D. intermedia did) but instead grew on higher ground above the puddles.

When I went up to "Pine Barrens" on the New Jersey coast, I stopped by Bass River Forest. I walked only about fifty yards from the office to the bridge and under that bridge were thousands of S. purpurea growing all over in a series of ponds with a stream running through. They grew right in the water with their roots, rhizomes and most of their leaves under water, tangled up in Utricularia.

On the banks were bogs of Sphagnum moss with little holes in them. The holes were the openings to the pitchers of S. purpurea. The ones

that grew in the pond were elongated, dark purple-maroon red, with long stringy rhizomes. The rhizomes would float near to the water surface and then bear about three to six buds of new sprouts (depending on how long the rhizomes were). Some rhizomes showed about a two to three inch growth between leaves. The pitchers were huge and elongated and could easily hold over a pint to almost a quart of water. I received special permission to collect a few specimens. It was extremely easy collecting those from the water. Most of the plant could be lifted by placing my hand under and giving a gentle pull.

Along the lake of Bass River, D. intermedia dominated much of the bank. It grew everywhere--underwater, or floating on driftwood, wet rocks, tree stumps filled with water. However, a few banks had some D. filiformis that were about six to ten inches high growing in a well drained Sphagnum moss-topped sandy bank.

Jumping across the country to visit friends and relatives on the west coast, I set out to search for Darlingtonia plants in northern California. In Gasquet, I saw several small rocky streams of cold spring water trickling through rocks and in between were the tall pitchers of Darlingtonia. These few plants grew in almost no soil at all, as they just rooted themselves in between the rocks and stones of the stream and grew contently with just the fresh, cool spring mountain water. They seem to love the mountain springs and meadows. Unlike the Sarracenia that have their pitchers facing each other like a football huddle, the Darlingtonia's pitchers twist 180° as they grow so that all the pitchers of one plant have their backs to each other. This gives each pitcher a greater range of scope for insects. They prefer direct sunlight from the northeast for a few morning hours. Almost always, there will be running water trickling through the meadows where they grow.

It is interesting to compare the translucent spots of Darlingtonia and S. minor and a few others. The translucent spots on the hood appear as holes to the insect as their eyes see images rather than defined objects. So they have no fear of crawling inside. The "tongue" of Darlingtonia is the "red carpet of doom" tempting the victim right inside the hood. Although Darlingtonia pitchers get quite large, I found mostly small insects in the pitcher such as beetles and ants. The hood prevents any rain from entering so it can be assumed that the digestive liquid has been secreted by the walls of this pitcher. The hole curves inward so once an ant enters the hood and tries to walk out, it will find itself walking upside down with unsure footing and soon falls into the fluid below. The long, stiff hairs pointing downward prevent escape. A waxy coating further up the pitcher causes the insect to lose its grip and fall into the fluid which soon digests it.

Darlingtonia pitchers grew tall, up to four feet, had strong, tough walls for support in the breezes. The best location for these plants that I've found is around Clair Lake, near Redding, California. Take Route 3 from Weaverville, then past Mule Creek until a sign says Lake Eleanor Trail. It is advisable to pick up a map at the Mule

Creek Ranger Station. Follow it carefully until the road ends. Then walk out of your car to the lake. The pitcher plants should be quite visible. They grow all along the road that leads to the trail, on the left side. Extensive bulldozing is going on in this area and probably there are several Darlingtonia bogs being torn out to make way for lakeside campsites.

(ED. NOTE: Dr. Edgar T. Wherry has recently become a subscriber to CPN, and after reading the first three issues, he sent us the following comments in the form of three little essays.)

#### Essay 1. CORRECTION

Introductory sheet, end of paragraph 3. The expression "carnivorous botanists" is inappropriate, for some of your readers may be vegetarians. The correct wording should be carnivore botanists, meaning people who study carnivorous plants.

#### Essay 2. HANDS-ACROSS-THE-SEA

Some fifty years ago, as a native-plant-explorer for the U. S. Department of Agriculture, I collected plants and wrote text and key for Mrs. Walcott's work, Illustrations of American Pitcher Plants published by the Smithsonian Institution. Becoming thus known as something of an authority on these plants, I received considerable correspondence; especially interesting was that from Mr. T. Saito of Japan. One summer I attended the convention of the American Institute of Biological Sciences at Columbus, Ohio, and there was approached by a young Japanese student, who introduced himself as Katsuhiko Kondo, who told me that his period of study at the University of North Carolina was financed by my correspondent Saito, who told Kondo while in the U. S. to be sure and visit Philadelphia and get acquainted with me - and behold, he merely had to walk across a room.

#### Essay 3. LUMPING VS. SPLITTING

It seems desirable for the benefit of readers who are not professional taxonomists to enlarge on the classification of these folks as "lumpers" versus "splitters," with especial reference to a conservation problem. In Vol. I, No. 1, p. 15, there is a book review referring to a case of contrasting views: careful students of Australian Nepenthes had, as splitters, recognized eight species. But the author, decidedly a lumper, reduces them all to one.

Some years ago I discovered near Flat Rock, North Carolina, a spectacularly showy pitcher plant, and duly named it Sarracenia jonesii. Its pitchers, borne singly or in very small numbers, were rather well covered by an arching hood and its large flowers had deep red petals. Growing in open grassland, it could easily be found by prospective pollinating insects, and so it had developed no fragrance to attract these. Its range proved to be chiefly in the